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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,382	10/01/2001	Jean-Louis Viovy	BET 01/0527	2870

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YOUNG & THOMPSON
745 SOUTH 23RD STREET 2ND FLOOR
ARLINGTON, VA 22202

EXAMINER

OLSEN, KAJ K

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 03/26/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/869,382	VIOVY ET AL.	
	Examiner	Art Unit	
	Kaj Olsen	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32-62 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 32-62 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

1. The claims should also be prefaced with a sentence starting "I (or we) claim," "The invention claimed is" (or equivalents).

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2. Claims 32, 54 and 55 are objected to because of the following informalities: They misuse the term “an”. The terms “[h]eat” and “[u]se” should be prefaced with --a--, not “an”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 32-62 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

6. In claim 32, it is unclear how to interpret the phrase requiring the block copolymers to comprise “in average” a specified structure. How would one possessing ordinary skill in the art reasonably construe a specified structure as being in average?

7. Claim 32 specifies two noncontiguous polymeric segments, but it is unclear if the applicant is referring to the same or different polymeric segments listed in the limitation preceding it.

8. In claim 36, it is unclear what could reasonably be construed as being a “significant fraction”.

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9. In claim 37, applicant utilizes a range within another range rendering it unclear what the scope of the claim is.
10. In claim 38, applicant doesn't have antecedent support for the term "the blocks".
11. In claims 38, 43, 49-51, and 56-58, applicant specified a particular molecular mass, but specifies no units for the mass.
12. In claims 39 and 40, it is unclear what "said polymers" is explicitly referring back to. In addition, it is unclear how to interpret that "said polymer" in the form of linear block polymers in claim 39.
13. Claim 40 is additionally confusing because it specifies that it consists of one or more "segments". Is the term "segments" referring back to either of the segments of claim 32, and if so, which one?
14. The use of "segments" in claim 41 is also confusing for the reasons set forth for claim 40.
15. In claims 42 and 43, the term "the main skeleton" lacks antecedent basis.
16. In claim 44, is it unclear if "soluble segment" and "segments with LCST" are the same things as the first polymer segment and noncontiguous segments respectively of claim 32.
17. Claims 45-48 do not specify a selection from a list of choices in the proper Markush format (see MPEP 2173.05(h)).
18. In claims 47 and 48, applicant does not clearly establish how the specified materials of these claims are a further limitation of claim 32. In other words, how do these claims further limit the specified polymer segments of claim 32?
19. In claim 52, it is unclear if what follows the term "preferably" is part of the claimed invention.

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20. In claim 53, it is unclear if the applicant is specifying all the adjuvants listed or just at least one adjuvant from the list. In addition, it is unclear if "which may be neutral or ionic" is further modifying all the items of the list or just surfactants.

21. In claim 54-61, it is unclear what applicant is attempting to claim. A "use" of a material is not a recognized statutory class of invention. Applicant may claim structure in conjunction with the medium (i.e. an apparatus) or may claim a process of using the medium, but applicant cannot merely claim a use of an invention. Claims 54-58, 60, and 61 cannot be interpreted as process of using claims because these claims do not possess explicit steps for performing a method. Hence, the examiner will interpret claims 54-58, 60, and 61 as being just recitations of intended use of the medium.

22. In claim 54, it is unclear if what follows the phrase "in particular" is part of the claimed invention.

23. In claim 56, it is unclear how to interpret the phrase "or else".

24. In claim 58, it is unclear if what follows the phrase "such as" is part of the claimed invention.

25. In claim 59, it is unclear how to interpret the step of selecting said separation medium according to the characteristics of the species to be separated.

26. In claim 59, there is no antecedent support for "the thermostated portion".

Claim Rejections - 35 USC § 102

27. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

28. Claims 32-39 and 41-62 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 98/10274.

29. WO '274 discloses a heat-sensitive medium that comprises an electrolyte containing block copolymers. Said medium of WO '274 discloses as dramatically changing its viscosity of two different temperatures (see abstract). Said block copolymers tri-block structures ABA or BAB where A and B are independently comprised of a combination of poly(oxyethylene) (E), poly(oxypropylene) (P), or poly(oxybutylene) (B') (see p. 26, lines 8-17). Hence WO '274 discloses polymers having two noncontiguous groups of polymer segments such as P and B' separated by a polymer segment such as E. Although WO '274 does not explicitly recite that P and B' are LCST polymer segments, the disclosure of the instant invention evidences that P and B' do display a LCST (p. 21, lines 36 and 37). Furthermore, the disclosure evidences that E would constitute a material soluble at the two temperatures (see p. 20, line 31). With respect to whether the materials disclosed by WO '274 satisfy the various general claimed viscosity changes at the various general and specific claimed temperatures, it would appear to the examiner that these are a function of the claimed choice of block copolymer and because WO '274 sets forth the claimed structures, then it would also inherently be satisfy the claimed V1, V2, T1, and T2 conditions.

30. Although it is unclear if WO '274 teaches the use of LCST polymer segments and the use of lengths greater than 50 with sufficient specificity to anticipate the claims (see MPEP 2131.03), the examiner is of the opinion that the reference does sufficiently anticipate the claims. However

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in the alternative, it would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the specific monomers of P and B' for the end groups of the tri-block copolymer and to utilized chain lengths greater than 50, because once the general parameters for establishing thermoreversible gels have been set forth, finding the appropriate chain lengths for the established copolymers requires only routine skill in the art.

31. With respect to having the LCST components be between 2 to 25%, WO '274 teaches the use of much smaller portions of P and B' compared with the E portions (paragraph bridging pp. 26 and 27).

32. With respect to the claimed amount of polymer in the medium, see p. 39, line 12.

33. With respect to the use of adjuvants, see pp. 28, lines 1-11.

34. With respect to claims 54-58, 60, and 61, these claims merely recite the intended use of the medium and the intended use need not be given further due consideration.

35. With respect the process steps of claim 59, see paragraph bridging pp. 6 and 7 as well as p. 11, lines 9-16.

36. With respect to the capillary electrophoresis device, see fig. 7.

Claim Rejections - 35 USC § 103

37. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

38. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

39. Claims 32-38 and 40-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hooper (USP 5,885,432) in view of WO '274 with evidence provided by the instant invention or EP 0 583 814.

40. Hooper discloses a medium for electrophoresis that comprises a electrolyte (i.e. a buffer) having a copolymer dissolved therein (col. 4, lines 9-23). The copolymer useable for said medium includes graft copolymers where polymers segments that undergo reversible viscosity changes, such as N-isopropyl acrylamide (i.e. NIPAM), are grafted to non-temperature sensitive polymers such as polyvinyl alcohol (col. 5, line 26 through col. 6, line 32). Grafting procedures usually yield more than one grafts onto the base polymer. Hence Hooper teaches the presence of two non-contiguous segments that undergo reversible viscosity change. Hooper does not explicitly state that the non-contiguous segments undergo an LCST. However, both the instant invention and EP '814 evidence that NIPAM is a polymer with LCST (see instant invention, p. 22, lines 21-28; see EP '814, table A).

41. Hooper does not explicitly teach the use of chain lengths for the LCST polymers having greater than 50. However, as discussed above, WO '274 teaches in an alternate copolymer for

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electrophoretic medium the use of chain lengths for the copolymer segments of greater than 50 (p. 26, lines 8-17 as well as the specific examples identified on pp. 26 and 27). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of WO '274 for the medium of Hooper because WO '274 recognized what polymeric chain lengths provide the appropriate combination of gel character as well as the electrophoretic character.

42. With respect to the claimed viscosity changes as a function of temperature, see Hooper, fig. 5A. In addition because Hooper in view of WO '274 sets forth the claimed structures, then it would also inherently be satisfy the claimed V1, V2, T1, and T2 conditions.

43. With respect to the percentage of LCST polymer in the copolymer, see Hooper, col. 6, lines 26-32.

44. With respect to a comb polymer, the term "comb polymer" is an art recognized equivalent term for "graft polymer" which Hooper utilizes.

45. With respect to the specified molecule mass, see Hooper, col. 5, lines 1-5.

46. With respect to the use of adjuvants, see Hooper, col. 6, lines 36-50.

47. With respect to claims 54-58, 60, and 61, these claims merely recite the intended use of the medium and the intended use need not be given further due consideration.

48. With respect the process steps of claim 59, see WO '274, paragraph bridging pp. 6 and 7 as well as p. 11, lines 9-16.

49. With respect to the capillary electrophoresis device, see fig. 7 of WO '274.

Conclusion

50. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mori et al, Yoshioka et al, and Sassi et al all teach copolymer compositions for electrophetic media.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (703) 305-0506. The examiner can normally be reached on Monday through Thursday from 7:00 AM-4:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Mr. Nam Nguyen, can be reached at (703) 308-3322.

When filing a fax in Group 1700, please indicate in the header "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communications with the PTO that are not for entry into the file of this application. This will expedite processing of your papers. The fax number for regular communications is (703) 305-3599 and the fax number form after-final communications is (703) 305-5408.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0661.



Kaj K. Olsen
Patent Examiner
AU 1753
March 18, 2003